

AMENDMENTS TO THE CLAIMS

Upon entry of the present amendment, the status of the claims will be as is shown below. This listing of claims replaces all previous versions and listings of claims in the present application.

Listing of Claims:

1-11. (Cancelled)

12. (Currently Amended) A solid-state imaging apparatus comprising unit pixels that are arranged in a two-dimensional array, each unit pixel including a respective ~~light-collecting device~~ light-collector and light-receiver,

wherein said ~~light-collecting devices comprises~~ light-collector includes:

a substrate ~~into~~ onto which ~~the~~ incident light is incident; [[and]]

above said substrate, a plurality of light-transmitting films formed in a region ~~into~~ onto which the incident light is incident[[,]]; and

~~wherein~~ said plurality of light-transmitting film forms a zone films forming a plurality of zones in which each zone is equal to or shorter than a wavelength of the incident light[[,]]; and

the said plurality of ~~said~~ light-transmitting films ~~form~~ forming an effective refractive index distribution,

wherein, for each unit pixel located in a center of a plane on which said unit pixels are formed, a central axis of said light-receiver matches a central axis of said light

collector, and

wherein, for each unit pixel located in a periphery of the center of the plane, a central axis of said light-receiver and a central axis of said light-collector extend toward the center of the plane.

13. (Currently Amended) The solid-state imaging apparatus according to Claim 12, wherein line widths of said light-transmitting films are different between ~~said light-collecting devices~~ light-collectors of said unit pixels located close to a zone center and ~~said light-collecting devices~~ light-collectors of said unit pixels located near the zone periphery.

14. (Currently Amended) The solid-state imaging apparatus according to Claim 12, comprising at least:

a first unit pixel for first color light out of the incident light; and

a second unit pixel for second color light which has a typical wavelength that is different from a typical wavelength of the first color light;

wherein said first unit pixel includes a first ~~light-collecting device~~ light-collector,
and

said second unit pixel includes a second ~~light-collecting device~~ light-collector in which a focal length of the second color light is equal to a focal length of the first color light in said first ~~light-collecting device~~ light-collector.

15. (Currently Amended) The solid-state imaging apparatus according to Claim 12, wherein sums of ~~[[the]]~~ line widths of said plurality of light-transmitting films

in each of the divided areas area are different between a ~~light-collecting device~~ said light-collector of said unit pixel located in ~~[[a]]~~ the center of ~~[[a]]~~ the plane on which said unit pixel is formed and a ~~light-collecting device~~ said light-collector of said unit pixel located in the periphery of the plane.

16. (Currently Amended) The solid-state imaging apparatus according to Claim 12,

wherein a plane on which said pixels are formed is divided by concentric areas from a center of the plane to the periphery,

focal lengths of said ~~light-collecting devices~~ light-collectors of said unit pixels belonging to a same area are equal, and

focal lengths of said ~~light-collecting devices~~ light-collectors of said unit pixels belonging to areas other than the same area are different.

17. (Cancelled)

18. (Currently Amended) ~~The~~ A solid-state imaging apparatus ~~according to Claim 17~~ comprising unit pixels that are arranged in a two-dimensional array, each unit pixel including a respective light-collector,

wherein said light-collector includes:

a substrate onto which incident light is incident;

above said substrate, a plurality of light-transmitting films formed in a region onto which the incident light is incident; and

said plurality of light-transmitting films forming a plurality of zones in

which each zone is equal to or shorter than a wavelength of the incident light, and forming an effective refractive index distribution,

wherein each unit pixel further includes:

a wiring layer that has an aperture above a light-receiver on a light-outgoing side plane of said light-collector; and

a focal point of light collected by said light-collector that matches a central axis of the aperture of said wiring layer,

wherein, for each unit pixel in said unit pixels located in a center of a plane on which said unit pixels are formed, a central axis of ~~each of said light-receiving devices is placed to match~~ said light-receiver matches a central axis of ~~each of said light-collecting devices~~ said light-collector, and

wherein, for each unit pixel in said unit pixels located in ~~[[the]]~~ a periphery of the center of the plane, a central axis of ~~each of said light-receiving devices~~ said light-receiver and a central axis of ~~each of said light-collecting devices are placed~~ said light-collector extend toward the center of the plane.